In the Drawings:

Please enter the enclosed single Replacement Sheet bearing a revised Fig. 3 to replace the original drawing sheet 2 of 2. Reference number 23 was inadvertently omitted from original Fig. 3, and has now been added to Fig. 3 in the enclosed Replacement Sheet. This correction is supported by the written description at page 9 line 14, and does not introduce any new matter.

REMARKS:

1) The specification has been amended at page 11 to expressly recite that the shear-cutting edges 12 are acute shear-cutting edges, as can be seen in Fig. 2 of the drawings. Close inspection of Fig. 2 reveals that the cutting edges 12 have an acute cutting edge, whereby a radially outer rake surface does not extend tangent to the circular circumference, but rather extends at an angle inwardly from the tangent line. Thus, this amendment merely describes what is shown in the original drawings, and does not introduce any new matter. Entry of the amendment is respectfully requested.

2) In the drawings, Fig. 3 has been amended by adding reference number "23" which had been inadvertently omitted from original Fig. 3. This correction is in conformance with the written description at page 9 line 14, and does not introduce any new matter. Entry of the enclosed Replacement Sheet is respectfully requested. Please indicate the acceptance of the drawings in the next official communication.

3) The claims have been amended as follows.

The term "injection nozzle" has been changed to --injector nozzle-- to provide consistent use of the art-recognized term.

Independent claims 1 and 20 have been amended to recite that the injector nozzle has an internal nozzle passage that converges to a throat and then diverges from the throat to a nozzle outlet opening at an end of the injector nozzle arranged at the blow-in

hole provided in a side wall of the housing. This feature is disclosed in original Fig. 3 in which the illustrated example embodiment of the injector nozzle has an internal nozzle passage that converges to a throat having a diameter of 41 mm and then diverges to a nozzle outlet opening having a diameter of 42 mm, for example. These features are further supported in the written description at page 9 lines 7 to 25. This diverging or enlarging outlet opening of the injector nozzle is important for reducing air turbulence at the outlet opening of the nozzle, and furthermore promotes the Coanda effect by which the emitted jet of transport gas tends to cling to or follow along the end face of the injector nozzle and the inner surface of the end wall of the cellular wheel sluice housing, which improves the transport of the particulate material from this area, along and out of the dosing chamber. In this regard see page 9 line 25, as well as conventional understandings of the Coanda effect.

Furthermore, claims 1 and 20 have been amended to recite that the injector nozzle is adapted to blow transport gas into the dosing chamber while causing a reduced pressure of the transport gas around the blow-in hole so as to reduce an amount of leakage of the transport gas through the radial spacing gaps past the gap seals. This feature is supported in the original written description at page 4 lines 10 to 25, and page 12 line 3 to page 13 line 23. Such a reduction of the amount of transport gas leakage, despite the provision of radial spacing gaps between the gap seals and the cylindrical housing, is an important feature of the present invention.

Still further, claims 1 and 20 have been amended to recite that the shear-cutting edges of the gap seals are acute shear-cutting edges, as can be seen in Fig. 2 of the drawings, and as discussed above. The dependent claims have been amended for conformance with the independent claims wherever necessary.

In view of the above discussed original disclosures, the claim amendments do not introduce any new matter. Entry and consideration thereof are respectfully requested.

4) Referring to section 3 on pages 2 to 9 of the Office Action, the rejection of claims 1, 2, 10 to 13, 16, 17, 20, 21 and 25 as obvious over US Patent 4,978,252 (Sperber) in view of US Patent 4,844,101 (Hirsch et al.), US Patent 3,913,800 (Logan) and US Patent 4,823,993 (Siegel et al.) is respectfully traversed.

Currently amended independent claims 1 and 20 each recite a combination of special features according to the invention, including:

a) gap seals that are made of a hard material as hard as a metal;

b) radially outer edges of the gap seals are configured as acute shear-cutting edges;

c) a counter-cutting member with a counter-cutting edge is arranged in the supply chute to cooperate with the shear-cutting edges so as to shear-cut the particles of the particulate material;

d) a side wall of the housing has a blow-in hole therein;

e) an injector nozzle is mounted to the housing at the blow-in hole;

f) the injector nozzle has an internal nozzle passage that converges to a throat and diverges from the throat to a nozzle outlet opening at an end of the injector nozzle arranged at the blow-in hole; and

g) the injector nozzle is adapted to blow transport gas into the dosing chamber while causing a reduced pressure of the transport gas around the blow-in hole so as to reduce an amount of leakage of the transport gas through the radial spacing gaps past the gap seals.

The prior art references, even when considered in combination, would not have suggested or made obvious such a combination of features as now recited in the independent claim 1 or independent claim 20 of the present application.

The Examiner acknowledges that **Sperber** does not disclose an injection nozzle cooperating with the blow-in hole in the side wall of the housing. The Examiner further acknowledges that Sperber does not disclose a radial spacing gap between the gap seals and the cylindrical wall of the housing, whereby the gap seals are made of a material as hard as a metal. Sperber also does not disclose a counter cutting member. Contrary to the above points, Sperber expressly provides seal members that directly contact the inner surface of the cylindrical wall of the housing, the seals are apparently made of a resilient material such as the typical rubber seals or the like, the transport air is simply blown in through the blow-in hole in the side wall of the housing, and leakage air that leaks past the seals is purposely vented. A person of ordinary skill in the art reading

such disclosures would not have been motivated or directed toward the contrary features of the present invention.

The Examiner has additionally applied **Hirsch et al.** for allegedly disclosing an injection nozzle integrated in the area of the blow-in hole. However, Hirsch et al. do not disclose a **separate or distinct injector nozzle** arranged at and cooperating with the **blow-in hole**, but rather the blow-in hole provided in the side wall of the housing is itself a nozzle opening (col. 2 line 22, col. 4 lines 1 to 2, col. 5 lines 1 to 14). Thus, even a combination of Hirsch et al. with Sperber would not have suggested the arrangement of a distinct injector nozzle together with the blow-in hole provided in the sidewall of the housing.

Furthermore, the nozzle opening according to Hirsch et al. is either a **cylindrical bore hole** (18) having a constant circular cross-section or a **converging conical hole** (18a) (Figs. 2, 3 and 4; col. 5 lines 1 to 9 and col. 6 lines 30 to 37). Alternatively, the nozzle opening could be slit-shaped (col. 5 line 6). Such a nozzle opening does not correspond to and would not have suggested the presently claimed injector nozzle having a internal nozzle passage that converges to a throat and then diverges from the throat to a nozzle outlet opening at an end of the injector nozzle arranged at the blow-in hole.

Still further, Hirsch et al. expressly disclose that the Coanda effect must be avoided (col. 3 lines 4 to 5, and col. 5 lines 6 to 9). Such teachings are directly contrary to providing a diverging passage that diverges or enlarges from a nozzle throat to a nozzle outlet opening at an end of the injector

nozzle arranged at the blow-in hole. Namely, the diverging nozzle outlet opening according to the invention reduces air turbulence at the nozzle outlet opening and promotes the Coanda effect.

Thus, the teachings of Hirsch et al. regarding the nozzle hole in the side wall are directly contrary to the requirements of the present invention with respect to an injector nozzle that has a diverging nozzle outlet opening arranged at the blow-in hole of the side wall of the housing. As such, even a combined consideration of Hirsch et al. with Sperber would not have included the above discussed features, but rather would have taught away from the present invention.

Still further, the teachings of Hirsch et al. would not have suggested the presently claimed further features of the injector nozzle. Namely, according to present claims 1 and 20, the injector nozzle is adapted to cause a reduced pressure of the transport gas around the blow-in hole so as to reduce an amount of leakage of the transport gas through radial spacing gaps past the gap seals. Contrary thereto, Hirsch et al. expressly teaches that the expansion chamber bounded by the cellular wheel webs should be **sealed very tightly** so as to avoid losses of the transport gas (col. 2 lines 50 to 53). This requires gap seals that contact the inner wall surface of the cylindrical housing, just as taught by the primary reference of Sperber. There would have been no suggestion to instead purposely provide radial spacing gaps between the gap seals and the cylindrical housing wall, and to configure and arrange an injector nozzle so as to cause a reduced pressure of the transport gas and thereby reduce

an amount of leakage of the transport gas through these open radial spacing gaps. The technique of Hirsch et al. and the technique of Sperber regarding the sealing of the dosing chambers is directly contrary to that of the present invention. A person of ordinary skill in the art reading these disclosures would have had no understanding and no expectation of achieving a predictable result by purposely leaving radial spacing gaps along the gap seals, and configuring and arranging an injector nozzle so as to cause a reduced pressure and thereby reduce the amount of gas leakage. Such a result would have been entirely surprising in comparison to the contrary reference teachings.

The Examiner has further applied **Logan** for teaching gap seals made of a material as hard as a metal, which are spaced from the cylindrical housing wall of a rotary feeder. However, the rotary feeder of Logan is not a cellular wheel sluice with an axial blow-through dosing chamber, but rather is merely a rotary airlock in which the feed material falls vertically downwardly through the rotary airlock, without a transverse or axial blow-through transport gas. There is no pressurized transport gas injected axially through a dosing chamber within the rotary airlock, so that the pressure conditions and considerations are significantly different from those of the invention or those of Sperber or Hirsch et al. Thus, the Logan reference is in the category of the Weisselberg and Blankmeiser references that had been applied in a previous rejection which is no longer maintained.

The Examiner further asserts that the radially outer edges of the gap seal according to Logan are configured as

shear-cutting edges. Currently amended claims 1 and 20 have been clarified to recite that the shear-cutting edges are **acute** shear-cutting edges, which is not true of the gap seals according to Logan. To the contrary, the gap seals according to Logan purposely have a broad or thick rounded end to form a uniform gap (see Fig. 2), whereby the gap seal has an **obtuse** forward-facing edge.

The Examiner has cited **Siegel et al.** for allegedly disclosing a rotary feeder that uses a counter-cutting member with a counter-cutting edge (16). That assertion is respectfully traversed, because the element 16 is not a cutting blade but rather a stripping blade, which is not intended to cut the feed material, but rather merely to strip or wipe or "displace" the material away from the rotor blades into the cavities (see abstract, col. 2 line 56 to col. 3 line 19). Siegel et al. explain that the stripping edge expressly does not act in the manner of a shearing or cutting edge (col. 3 lines 16 to 19). Also, Siegel et al. additionally provide an air nozzle (18) to enhance this stripping or displacing effect (Fig. 4, col. 6 line 66).

The Examiner additionally cited and applied the **Lund** reference as an example of a rectangular edge of a blade that also acts as a shearing edge with a counter cutting member. However, it is significant to note that the gap seals or cutting edges of Lund **make contact** with the cylindrical walls of the rotary feeder such that there is **no gap** between the gap seals and the cylindrical wall purposely to prevent the escape of air past

the gap seals (see abstract, col. 1 lines 42 to 45, col. 2 lines 47 to 50). It makes sense that there should be no gap if a shearing action is intended. So, from Lund, a person of ordinary skill would have learned that a square-edged gap seal can cooperate with an acute counter cutting member so as to shear-cut the particulate material, if there is no gap between the rotor blades or gap seals and the cylindrical wall of the housing. To the contrary, the presence of a gap would prevent the intended scissor-like shearing action. In this regard, imagine a pair of scissors in which there is a gap between the two blades. Trying to use such a gappy or loose pair of scissors is frustrating because such scissors do not cut in the intended manner. It is significant that **no prior art reference** shows a rotor blade edge that has a **radial spacing gap** relative to the cylindrical housing **yet can still cooperate with a counter-cutting blade** for shear-cutting the particulate material.

In view of the above discussion, even a consideration of all of the references together would not have suggested the above discussed combination of features respectively recited in present independent claim 1 and independent claim 20. For example, none of the references discloses or suggests an acute shear-cutting edge that is spaced away from the cylindrical housing wall with a radial spacing gap therebetween, yet still cooperates with a counter-cutting edge so as to shear-cut particles of a particulate material. None of the references discloses or suggests to provide an injector nozzle in combination with a blow-in hole in the side wall of the housing, whereby the

injector nozzle has an internal nozzle passage that converges to a throat and then diverges from the throat to a nozzle outlet opening at an end at the injector nozzle arranged at the blow-in hole. Furthermore, none of the references discloses or suggests configuring and arranging an injector nozzle so as to cause a reduced pressure of the injected transport gas around the blow-in hole and thereby reduce an amount of leakage of the transport air through radial spacing gaps past the gap seals.

The dependent claims are patentable already due to their dependence from claims 1 or 20.

For the above reasons, the Examiner is respectfully requested to withdraw the obviousness rejection applying Sperber in view of Hirsch et al., Logan, Siegel et al. and Lund.

5) Referring to section 4 on page 9 of the Office Action, the rejection of claims 14 and 26 as obvious over Sperber in view of Hirsch, Logan and Siegel, and further in view of US Patent 4,155,486 (Brown) is respectfully traversed. Claims 14 and 26 depend from claims 1 and 20, which have been discussed above in comparison to Hirsch, Logan and Siegel. Applicants' further remarks regarding Brown, as set forth at page 23 of the prior Response dated January 13, 2010, are incorporated herein by reference and reasserted. Claims 14 and 26 are patentable already due to their dependence from claims 1 and 20. The Examiner is respectfully requested to withdraw the obviousness rejection applying Sperber in view of Hirsch et al., Logan, Siegel et al. and Brown.

6) Referring to section 5 on pages 9 to 10 of the Office Action, the rejection of claims 15, 27 and 28 as obvious of Sperber in view of Hirsch et al., Logan, Siegel et al. and US Patent 4,906,144 (Matsueda) is respectfully traversed. Claim 15 depends from claim 1 and claims 27 and 28 depend from claim 20, which have been discussed above in comparison to Sperber in view of Hirsch et al., Logan and Siegel et al. Applicants' further remarks regarding Matsueda, as set forth on page 24 of the prior Response dated January 13, 2010 are incorporated herein by reference and reasserted. Claims 15, 27 and 28 are patentable already due to their dependence from claims 1 and 20. The Examiner is respectfully requested to withdraw the obviousness rejection applying Sperber in view of Hirsch et al., Logan, Siegel et al. and Matsueda.

7) Referring to section 6 on page 10 of the Office Action, the rejection of claims 18, 19, 22 and 23 as obvious over Sperber in view of Hirsch et al., Logan and Siegel et al. further in view of US Patent 5,725,332 (Harper et al.) is respectfully traversed. Claims 18 and 19 depend from claim 1 and claims 22 and 23 depend from claim 20, which have been discussed above in comparison to Sperber in view of Hirsch et al., Logan and Siegel et al. Applicants' further remarks regarding Harper et al., as set forth on page 25 of the prior Response of January 13, 2010 are incorporated herein by reference and reasserted. Claims 18, 19, 22 and 23 are patentable already due to their dependence from claims 1 and 20. The Examiner is respectfully requested to

withdraw the obviousness rejection applying Sperber in view of Hirsch et al., Logan, Siegel et al. and Harper et al.

8) Referring to section 7 on pages 11 to 14 of the Office Action, the Examiner's further remarks and response to Applicants' prior arguments are appreciated and well-taken.

Regarding the "inherent sharpness" of the outer ends of the rotor blades of Logan, note that the independent claims have been amended to expressly recite an "acute shear-cutting edge" which is clearly distinct from the blunt, purposely-rounded outer end of the rotor blade of Logan, which has an obtuse forward-facing edge. Also note that Lund expressly has no gap between the gap seal edge and the cylindrical housing wall, and providing such a gap (without other adjustments) would defeat the shear-cutting action. There is no prior art reference that has a gap yet still has a shear-cutting action.

It is further recognized that the Examiner was not necessarily relying on Reference X to establish Prior Art Feature Y, which the applicant showed was not taught by X or was contrary to the teachings of X. Nonetheless, applicants' prior arguments point out the overall context of the understandings in the prior art contrary to the claimed features of the invention. The Examiner cannot "pick and choose" individual features from individual references while ignoring or omitting the other features of those references that are contrary to the requirements of the invention. The prior art must be considered as a whole, including teachings toward the invention as well as teachings away from the invention. A person of ordinary skill

understands a reference in the context of all of its teachings, and does not simply pick an individual feature or aspect out of a reference to be combined with individual features from other individual references. Such "picking and choosing" of individual features gives the impression that the presently claimed invention is improperly being used as a blueprint or guide for carrying out a hindsight reconstruction of the present invention. To avoid such an improper reconstruction, the overall context of all of the teachings of each reference must be considered.

9) Favorable reconsideration and allowance of the application, including all present claims 1, 2, 10 to 23 and 25 to 28, are respectfully requested.

Respectfully submitted,

By Walter F Fasse

Walter F. Fasse
Patent Attorney
Reg. No.: 36132
Tel. 207-862-4671
Fax. 207-862-4681
P. O. Box 726
Hampden, ME 04444-0726

WFF:he/4959
Enclosures:
Transmittal Cover Sheet
Term Extension Request
Form PTO-2038
Drawing Transmittal
1 Replacement Sheet
Postcard

CERTIFICATE OF MAILING:

I hereby certify that this correspondence with all indicated enclosures is being deposited with the U. S. Postal Service with sufficient postage as first-class mail, in an envelope addressed to: COMMISSIONER FOR PATENTS, P.O. BOX 1450, ALEXANDRIA, VA 22313-1450 on the date indicated below.

Walter F Fasse 7/16/10

Name: Walter F. Fasse - Date: July 16, 2010